Troubleshooting Mac OS X Server
Tips and tricks

Zack Smith

Consulting Engineer - 318

@acidprime

January 28th, 2011

A few words on the future of Mac OS X Server...

den-mbadm
den-mbmaster
den-mbpreview01
BELKIN
den-mbpreview02
den-mbmdc01
den-mbmdc02

Sunday, October 9, 11

Troubleshooting a Service

```
tail -f /var/log/samba/log.smbd
```

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tail -f /var/log/samba/log.smbd
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Returning domain sid for domain FOOBARBAZ ->
S-1-5-21-3354372367-4287929087-26893l7292

Troubleshooting a Service

`tail -f /var/log/samba/log.smbd`

Returning domain sid for domain FOOBARBAZ ->
S-1-5-21-3354372367-4287929087-26893l7292

check_ntlm_password: authentication for user [diradmin] ->
[diradmin] -> [diradmin] succeeded

Troubleshooting a Service

```
tail -f /var/log/samba/log.smbd
```

Returning domain sid for domain FOOBARBAZ -> S-1-5-21-3354372367-4287929087-268931729 2

check_ntlm_password: authentication for user [diradmin] -> [diradmin] -> [diradmin] succeeded

[2009/08/11 16:09:57, 2, pid=447] /SourceCache/samba/samba-187.8/samba/source/smbd/reply.c:reply_special(328)

Troubleshooting a Service

`tail -f /var/log/samba/log.smbd`

Returning domain sid for domain FOOBARBAZ ->
S-1-5-21-3354372367-4287929087-26893l7292

check_ntlm_password: authentication for user [diradmin] ->
[diradmin] -> [diradmin] succeeded

[2009/08/11 16:09:57, 2, pid=447] /SourceCache/samba/samba-187.8/
samba/source/smbd/reply.c:reply_special(328)

netbios connect: name1=10.18.13.11 name2=FOOBAR01

Beware of Red Herrings

__THE_PROCESS_HAS_FORKED_AND_YOU_CANNOT_USE_THIS_COREFOUNDATION_FUNCTIONALITY___YOU_MUST_EXEC__() to debug.

The process has forked and you cannot use this CoreFoundation functionality safely. You MUST exec().

Break on

__THE_PROCESS_HAS_FORKED_AND_YOU_CANNOT_USE_THIS_COREFOUNDATION_FUNCTIONALITY___YOU_MUST_EXEC__() to debug.

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Troubleshooting a Server Crash

Establishing a timeline

Establishing a timeline

```
tail -f /var/log/system.log
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```
sysctl -a | grep boottime
```

Establishing a timeline

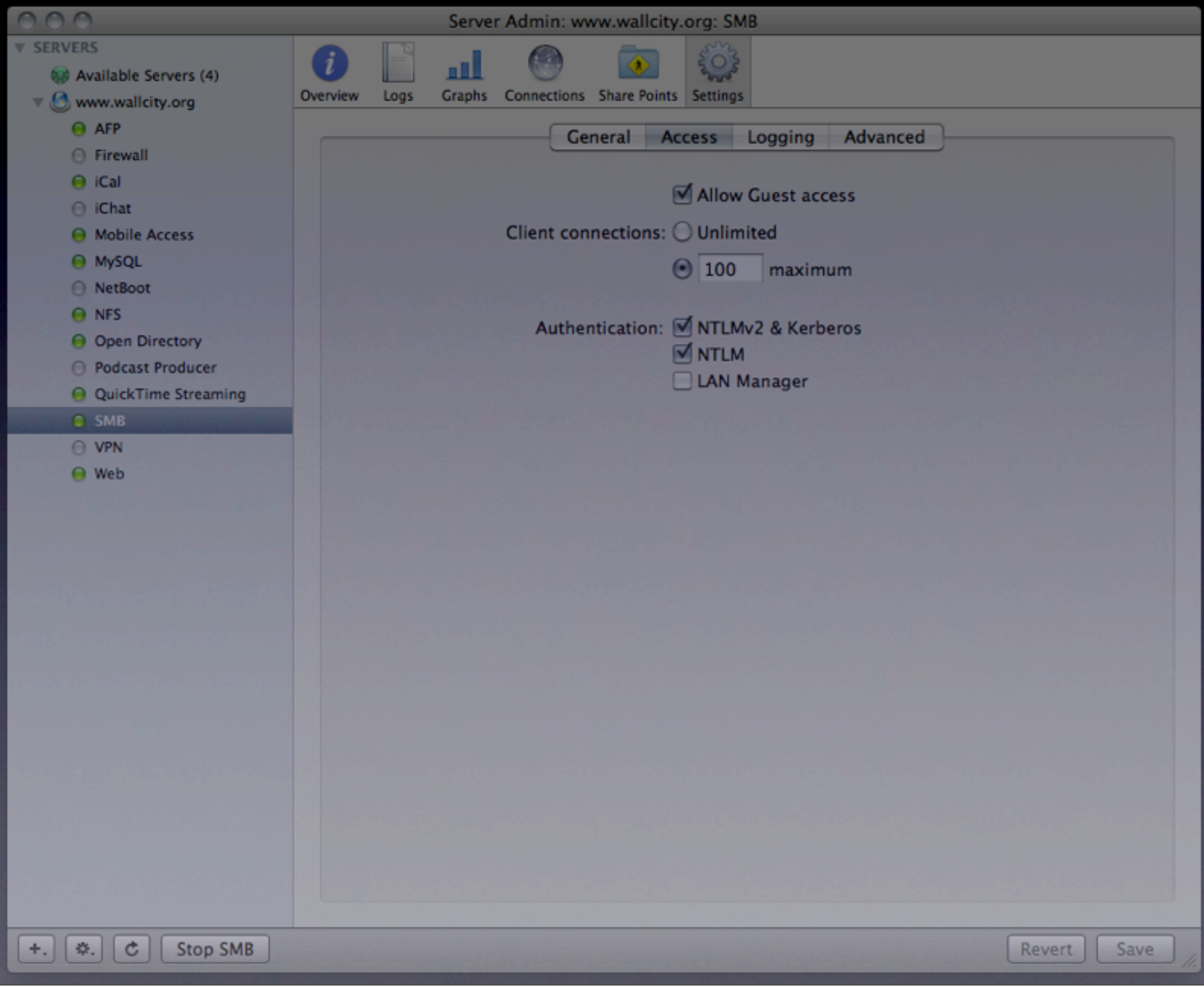
```
tail -f /var/log/system.log
```

```
sysctl -a | grep boottime
```

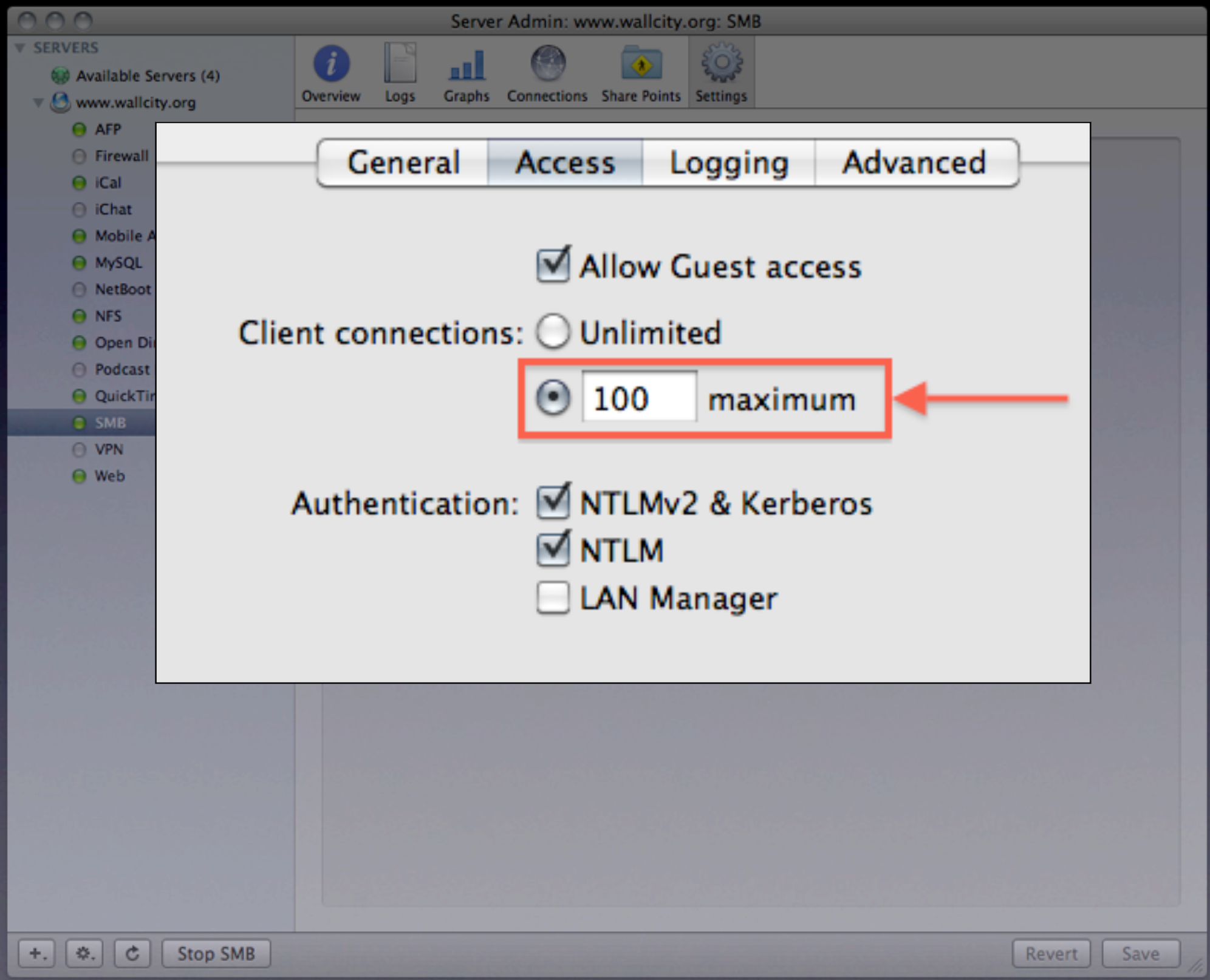
```
last | grep crash
```

```
admin  ttys000                  Thu Sep  8 12:26 - crash (4+13:58)
admin  console                   Wed Aug 31 12:45 - crash (12+13:38)
admin  ttys000                  Mon Aug 29 11:37 - crash (2+01:07)
admin  console                   Tue Aug 23 16:21 - crash (7+20:23)
admin  console                   Tue Aug 16 20:42 - crash (6+19:38)
admin  console                   Thu Aug 11 09:19 - crash (5+11:22)
admin  ttys000                  Wed Aug 10 17:59 - crash  (09:15)
admin  console                   Mon Aug  8 10:24 - crash (2+16:50)
admin  ttys000                  Thu Jul 28 11:27 - crash (2+02:37)
admin  console                   Thu Jul 28 09:54 - crash (2+04:10)
admin  ttys000                  Fri Jun 24 16:12 - crash (1+01:32)
admin  console                   Wed Jun 15 17:50 - crash (9+23:54)
admin  console                   Sun Jun  5 22:15 - crash (4+05:28)
admin  console                   Fri Jun  3 10:26 - crash (2+11:48)
admin  ttys000                  Thu May 26 18:54 - crash (2+03:29)
admin  console                   Thu May 26 18:45 - crash (2+03:39)
admin  console                   Sun Apr 10 09:06 - crash (28+06:39)
admin  ttys000                  Wed Mar 30 17:39 - crash (10+15:25)
admin  console                   Wed Mar 23 16:23 - crash (17+16:41)
admin  console                   Tue Mar  1 16:28 - crash (16+00:36)
```

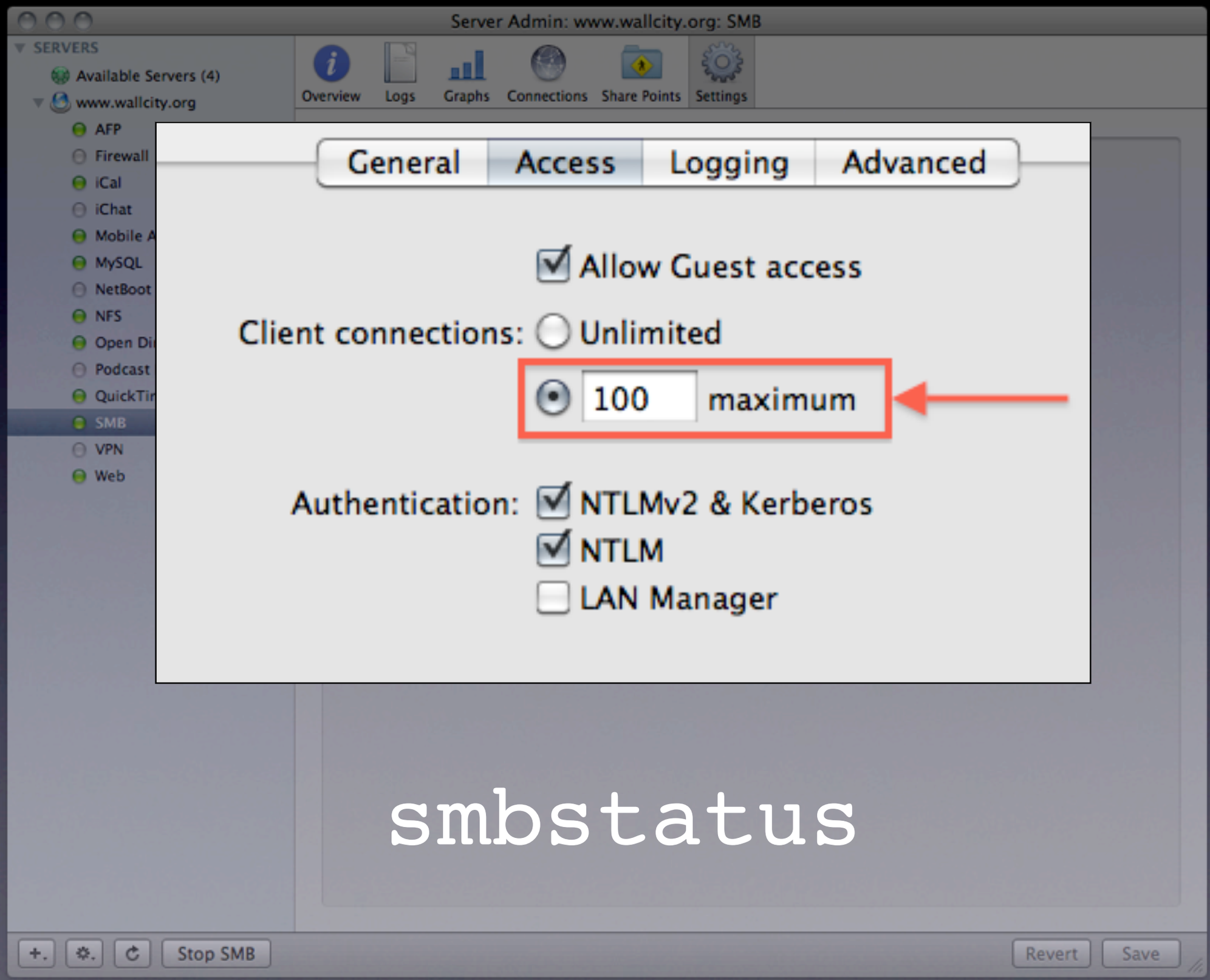
The Obvious issue



The Obvious issue



The Obvious issue



Trouble Shooting Directory Services

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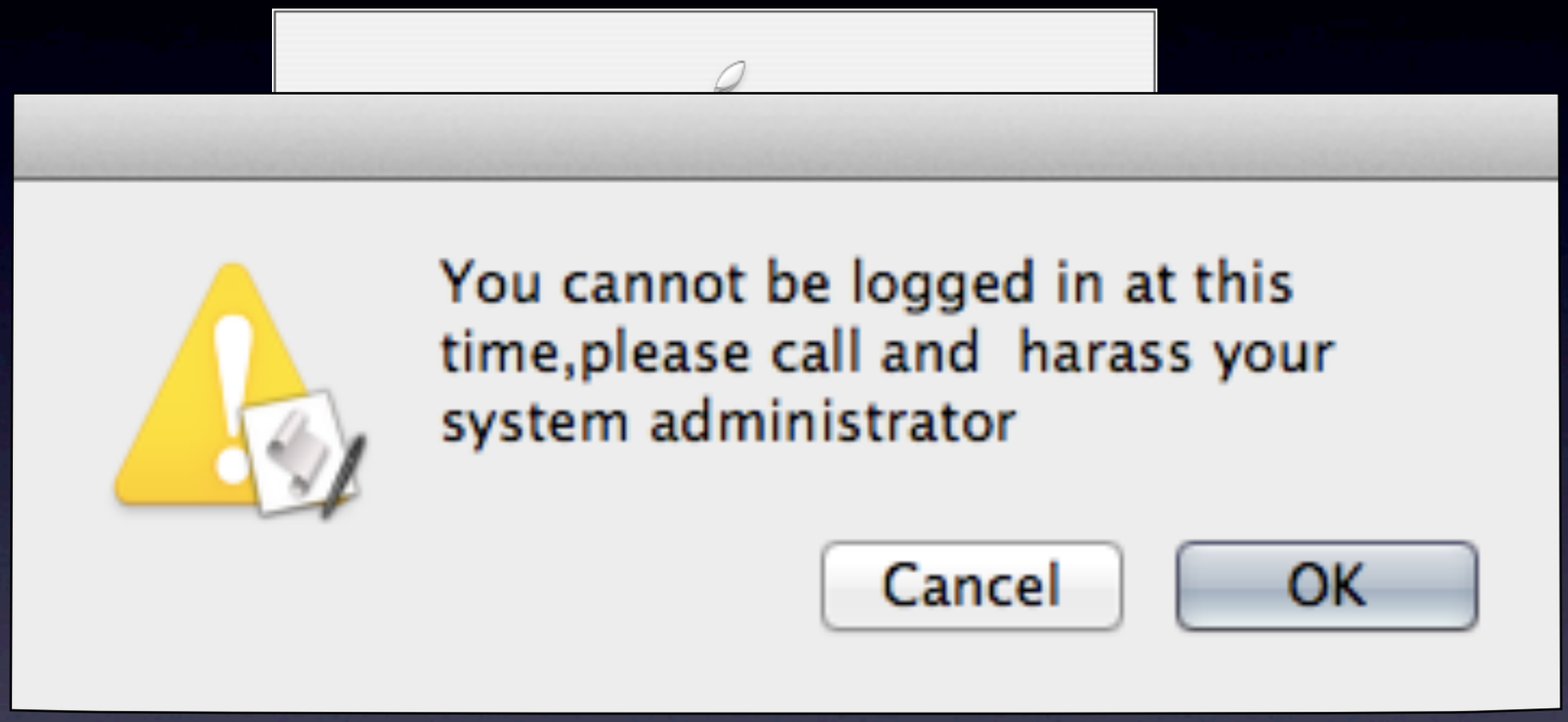

What i'd do first is use id

```
id zack.smith
```

10.6
10.7

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```
uid=1823079546(zack.smith) gid=1794000892(FOO\domain users)
groups=1794000892(FOO\domain users),1333478560(FOO\domain
admins),62(netaccounts),12(everyone),
405(com.apple.sharepoint.group.4),967708352(FOO\denied rodc
password replication group)
```

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10.7

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id: zack.smith: no such user

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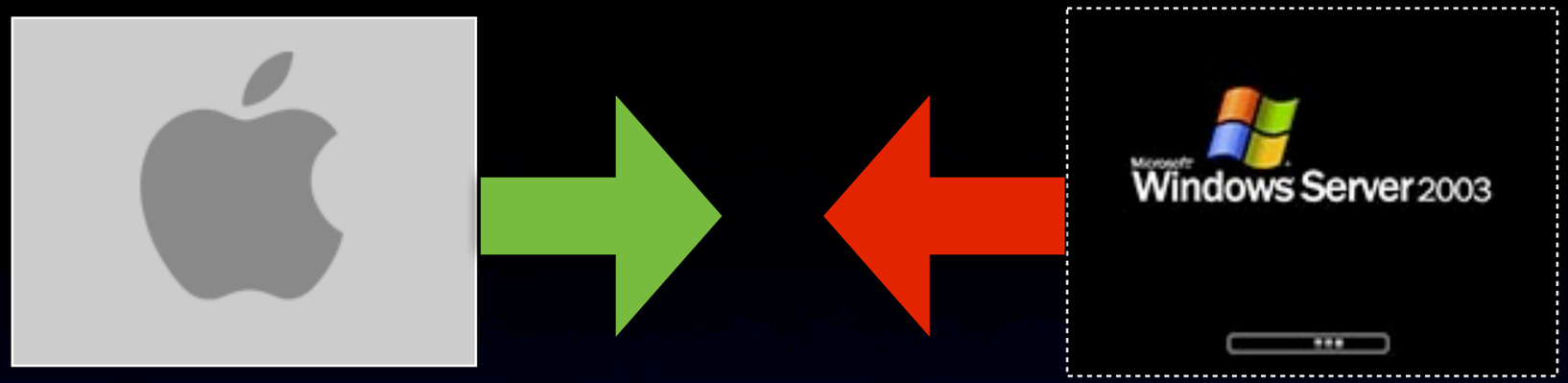
```
id: zack.smith: no such user
```

```
#!/bin/bash
if id someuser &>/dev/null; then
        echo "user resolution succeeded"
else
        echo "user does not exist"
fi
```

Rebooted without AD




```
#!/bin/bash
ipconfig waitall
until ping wallcity.org ; do
        sleep 1
          if !id administrator ; then
                  killall DirectoryService
          fi
done
exit 0
```

Rebooted without AD

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ipconfig waitall
until ping wallcity.org ; do
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killall DirectoryService
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until ping wallcity.org ; do
        sleep 1
          if !id administrator ; then
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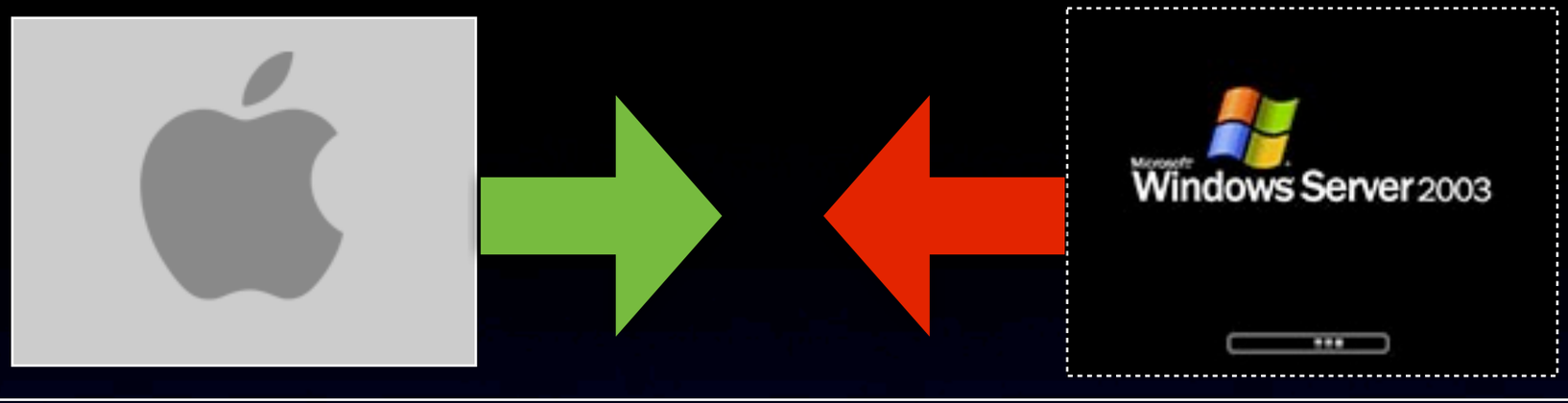
done
exit 0
```

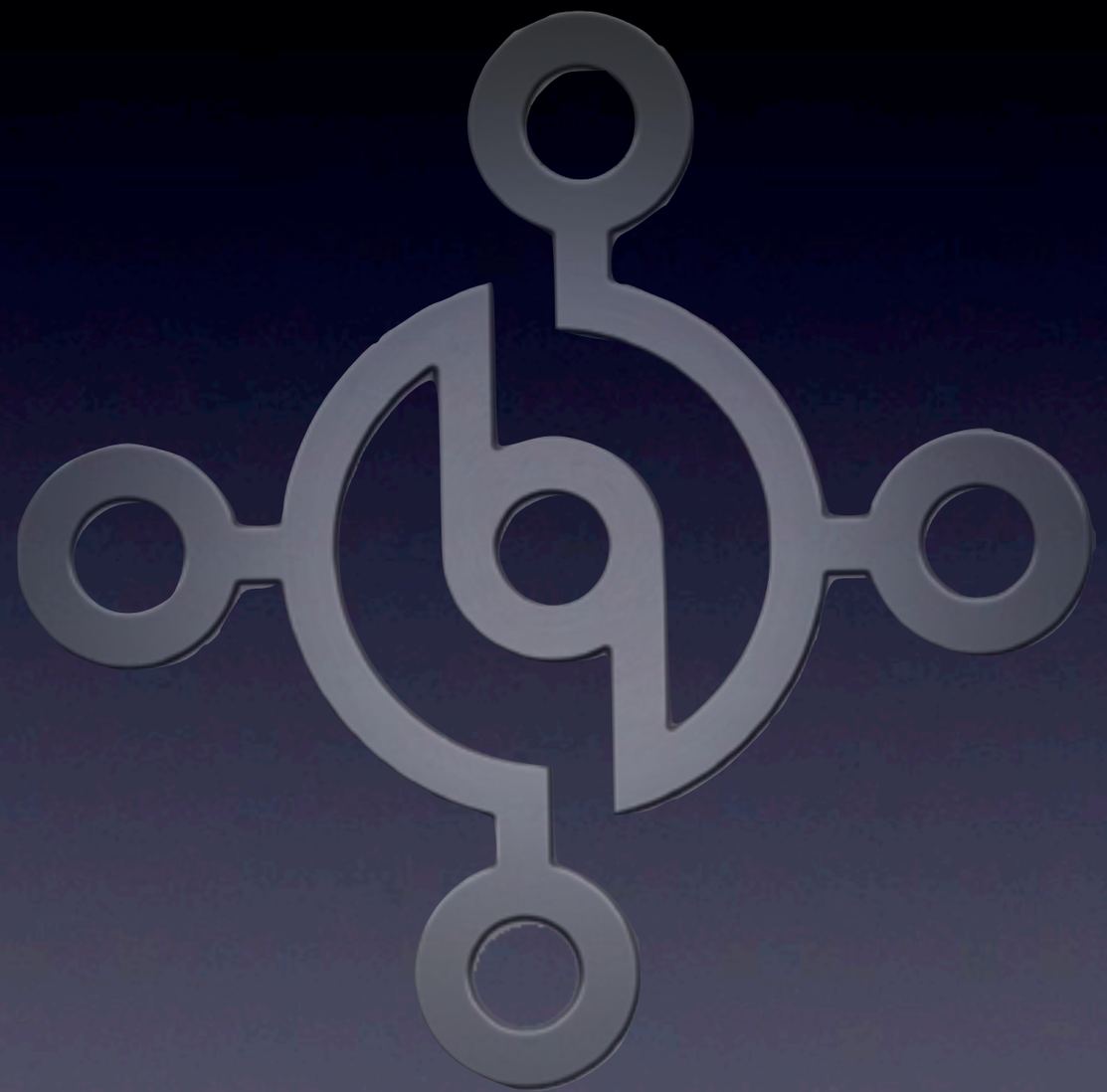
Rebooted without AD



killall opendirectoryd

```
#!/bin/bash
until ping wallcity.org ; do
        sleep 1
          if !id administrator ; then
                  killall opendirectoryd
          fi
done
exit 0
```

Troubleshooting Open Directory



Open Directory Database Corruption

Monday	Tuesday	Wednesday

Open Directory Database Corruption

Monday	Tuesday	Wednesday

Open Directory Database Corruption

Monday	Tuesday	Wednesday

Open Directory Database Corruption

Monday	Tuesday	Wednesday

```
#!/bin/bash
for BDB in /var/db/openldap/openldap-data/*.bdb
do
        echo "verifing db $BDB"
        /usr/bin/db_verify "$BDB" ||
                echo "$BDB check failed!"
done
```

Example Output

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
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verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
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verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
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verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
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verifing db /var/db/openldap/openldap-data/id2entry.bdb
```

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verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
```

Example Output

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verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
```

Example Output

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verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
verifing db /var/db/openldap/openldap-data/macAddress.bdb
```

Example Output

```
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verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
verifing db /var/db/openldap/openldap-data/macAddress.bdb
verifing db /var/db/openldap/openldap-data/mail.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
verifing db /var/db/openldap/openldap-data/macAddress.bdb
verifing db /var/db/openldap/openldap-data/mail.bdb
verifing db /var/db/openldap/openldap-data/memberUid.bdb
```

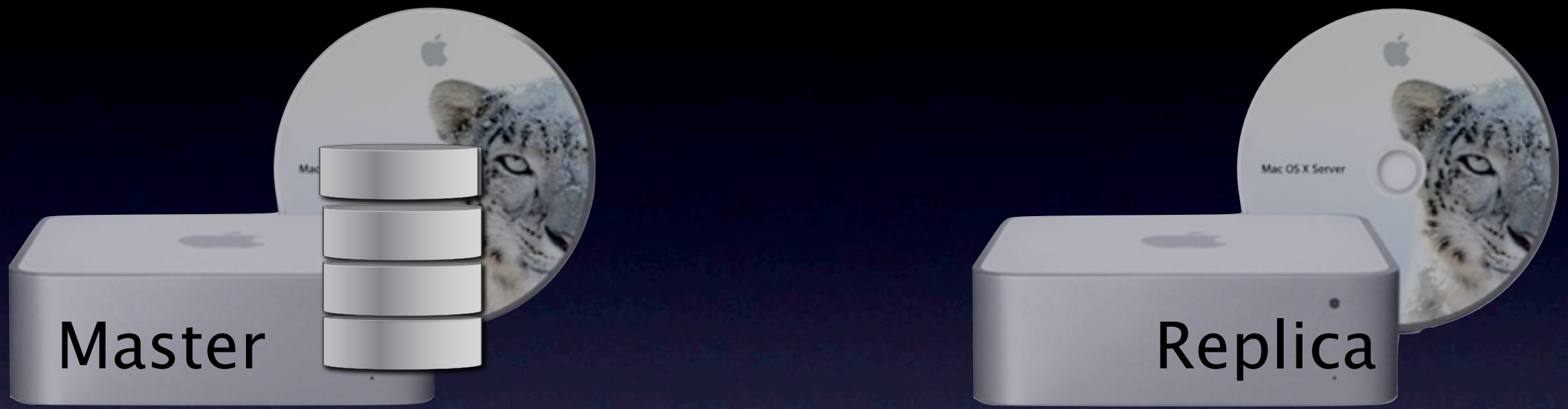
Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
verifing db /var/db/openldap/openldap-data/macAddress.bdb
verifing db /var/db/openldap/openldap-data/mail.bdb
verifing db /var/db/openldap/openldap-data/memberUid.bdb
verifing db /var/db/openldap/openldap-data/mobile.bdb
```

Example Output

```
verifing db /var/db/openldap/openldap-data/apple-computers.bdb
verifing db /var/db/openldap/openldap-data/apple-generateduid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-memberguid.bdb
verifing db /var/db/openldap/openldap-data/apple-group-nestedgroup.bdb
verifing db /var/db/openldap/openldap-data/apple-group-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-realname.bdb
verifing db /var/db/openldap/openldap-data/apple-serviceslocator.bdb
verifing db /var/db/openldap/openldap-data/c.bdb
verifing db /var/db/openldap/openldap-data/cn.bdb
verifing db /var/db/openldap/openldap-data/displayName.bdb
verifing db /var/db/openldap/openldap-data/dn2id.bdb
verifing db /var/db/openldap/openldap-data/gidNumber.bdb
verifing db /var/db/openldap/openldap-data/givenName.bdb
verifing db /var/db/openldap/openldap-data/id2entry.bdb
verifing db /var/db/openldap/openldap-data/ipHostNumber.bdb
verifing db /var/db/openldap/openldap-data/l.bdb
verifing db /var/db/openldap/openldap-data/macAddress.bdb
verifing db /var/db/openldap/openldap-data/mail.bdb
verifing db /var/db/openldap/openldap-data/memberUid.bdb
verifing db /var/db/openldap/openldap-data/mobile.bdb
...
```

Open Directory Replication Issues



Open Directory Replication Issues

Open Directory Replication Issues

```
#!/bin/bash
ls -l /var/db/openldap/openldap-data/*.bdb |
                    /usr/bin/wc -l
```

CountBDBs

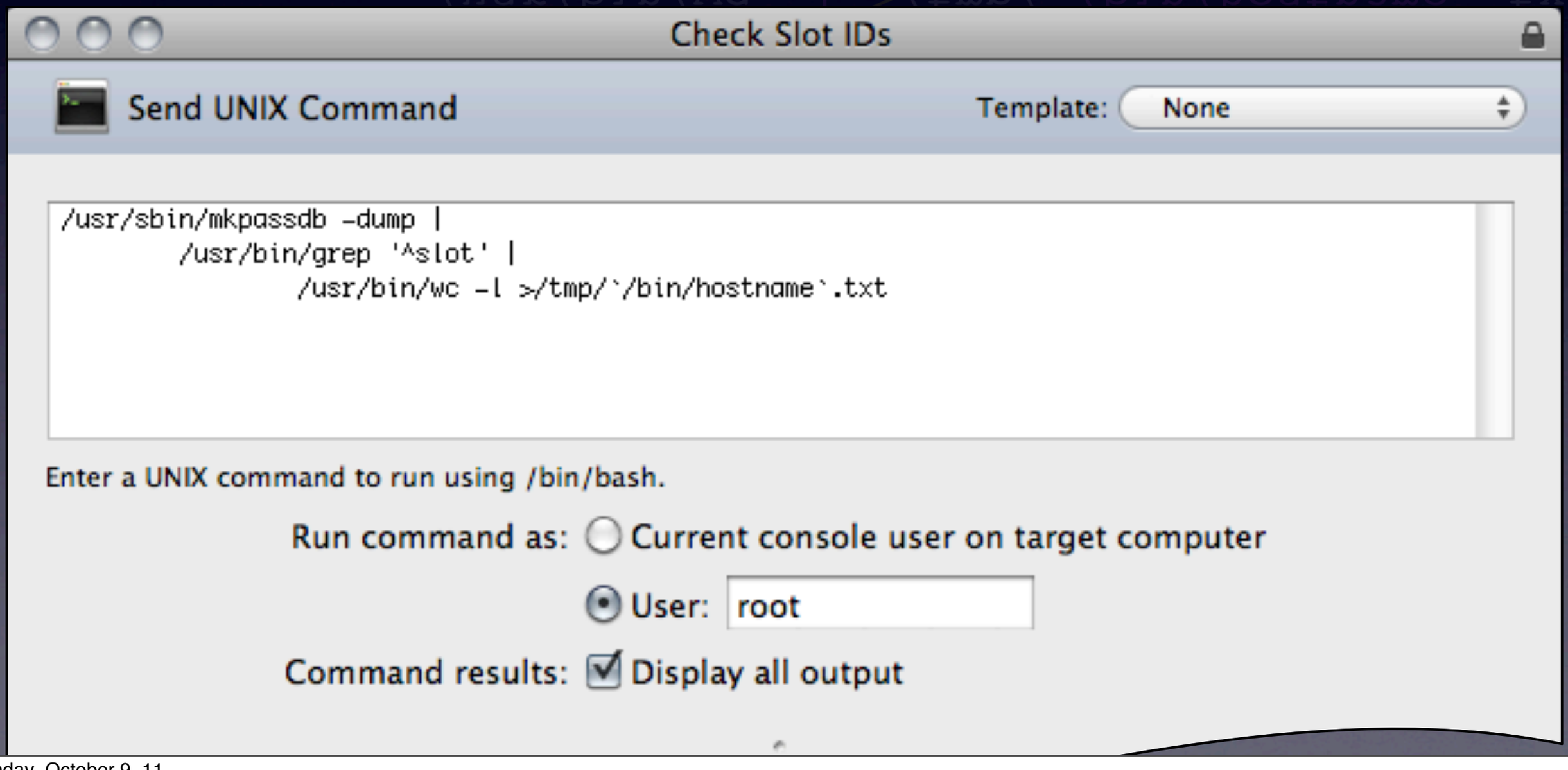
Send UNIX Command

Template: None

```
ls -l /var/db/openldap/openldap-data/*.bdb |
                    /usr/bin/wc -l
```

Count your slots

```
#!/bin/bash
/usr/sbin/mkpassdb -dump |
        /usr/bin/grep '^slot' |
                /usr/bin/wc -l >/tmp/`/bin/hostname`.txt
```



Checking Password Server Replication

```
./thescriptbelow "/path/to/odmaster.txt" "/path/to/odrep.txt"
```

```
#!/bin/bash
IFS=$'\n'
for LINE in `/bin/cat "$1"` ; do
        SLOT_ID="`echo "$LINE" | /usr/bin/awk '{print $3}'`"
        if ! /usr/bin/grep "$SLOT_ID" "$2" &>/dev/null ; then
                echo "Missing entry $SLOT_ID: $LINE"
        fi
done
```

Checking Password Server Replication

```
#!/bin/bash
/usr/sbin/mkpassdb -dump |
        /usr/bin/grep '^slot' >/tmp/`/bin/hostname`.txt
```

```
./thescriptbelow "/path/to/odmaster.txt" "/path/to/odrep.txt"
```

```
#!/bin/bash
IFS=$'\n'
for LINE in `/bin/cat "$1"` ; do
        SLOT_ID="`echo "$LINE" | /usr/bin/awk '{print $3}'`"
        if ! /usr/bin/grep "$SLOT_ID" "$2" &>/dev/null ; then
                echo "Missing entry $SLOT_ID: $LINE"
        fi
done
```

Is LDAP server Running?

ps -axww | grep sla[p]

malkin.wallcity.org (192.168.53.20)

```
  76 ??         9:50.72 /usr/libexec/slapd -d 0 -h ldap:/// ldapi://%2Fvar%2Frun%2Fldapi
```

10.6
10.7

Password Server is Running?

```
ps -axww | grep Passwor[d]
malkin.wallcity.org (192.168.53.20)

 88 ??         251:13.97 /usr/sbin/PasswordService -n
```

com.318.dscheck.plist

Add Child Delete Item

Key	Type	Value
▼ Root	Dictionary	(6 items)
Label	String	com.318.dscheck
▼ ProgramArguments	Array	(1 item)
Item 0	String	/usr/local/bin/dscheck
RunAtLoad	Boolean	☑
StartInterval	Number	60
▼ WatchPaths	Array	(1 item)
Item 0	String	/Library/Preferences/SystemConfiguration/preferences.plist
UserName	String	root

dscl authonly

```
#!/bin/bash
AD='/Active Directory/wallcity.org'
if dscl $AD -authonly zack.smith "d0gc4t" ; then
        echo "auth succeeded"
else
        echo "auth failed"
fi
```

10.6

```
#!/bin/bash
AD='/Active Directory/WALLCITY'
if dscl $AD -authonly zack.smith "d0gc4t" ; then
        echo "auth succeeded"
else
        echo "auth failed"
fi
```

10.7

Checking Kerberos Authentication

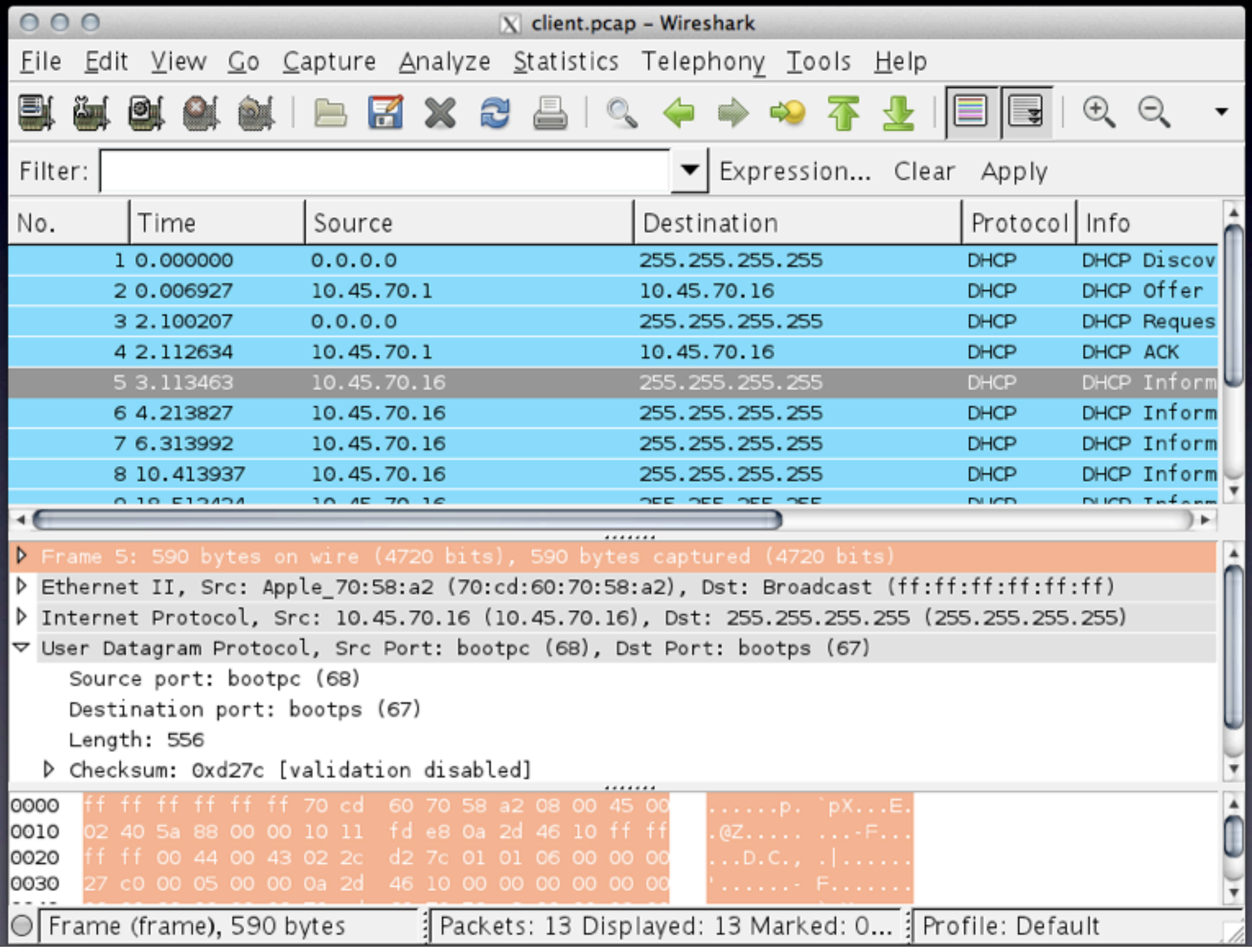
kinit zack.smith
Please enter the password for zack.smith@WWW.WALLCITY.ORG:

klist
Kerberos 5 ticket cache: 'API:Initial default ccache'
Default principal: zack.smith@WWW.WALLCITY.ORG

Valid Starting Expires Service Principal
06/16/10 18:16:40 06/17/10 04:16:40 krbtgt/
WWW.WALLCITY.ORG@WWW.WALLCITY.ORG
renew until 06/23/10 18:16:40

A few random tips

Some interesting netboot stuff


client.pcap – Wireshark
File Edit View Go Capture Analyze Statistics Telephony Tools Help
Filter: Expression... Clear Apply
No. Time Source Destination Protocol Info
1 0.000000 0.0.0.0 255.255.255.255 DHCP DHCP Discov
2 0.006927 10.45.70.1 10.45.70.16 DHCP DHCP Offer
3 2.100207 0.0.0.0 255.255.255.255 DHCP DHCP Reques
4 2.112634 10.45.70.1 10.45.70.16 DHCP DHCP ACK
5 3.113463 10.45.70.16 255.255.255.255 DHCP DHCP Inform
6 4.213827 10.45.70.16 255.255.255.255 DHCP DHCP Inform
7 6.313992 10.45.70.16 255.255.255.255 DHCP DHCP Inform
8 10.413937 10.45.70.16 255.255.255.255 DHCP DHCP Inform
Frame 5: 590 bytes on wire (4720 bits), 590 bytes captured (4720 bits)
Ethernet II, Src: Apple_70:58:a2 (70:cd:60:70:58:a2), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
Internet Protocol, Src: 10.45.70.16 (10.45.70.16), Dst: 255.255.255.255 (255.255.255.255)
User Datagram Protocol, Src Port: bootpc (68), Dst Port: bootps (67)
Source port: bootpc (68)
Destination port: bootps (67)
Length: 556
Checksum: 0xd27c [validation disabled]
0000 ff ff ff ff ff ff 70 cd 60 70 58 a2 08 00 45 00 ......p. `pX...E.
0010 02 40 5a 88 00 00 10 11 fd e8 0a 2d 46 10 ff ff .@Z..... ...-F...
0020 ff ff 00 44 00 43 02 2c d2 7c 01 01 06 00 00 00 ...D.C., .|......
0030 27 c0 00 05 00 00 0a 2d 46 10 00 00 00 00 00 00 '......- F.......
Frame (frame), 590 bytes
Packets: 13 Displayed: 13 Marked: 0...
Profile: Default

Load balancing netboot

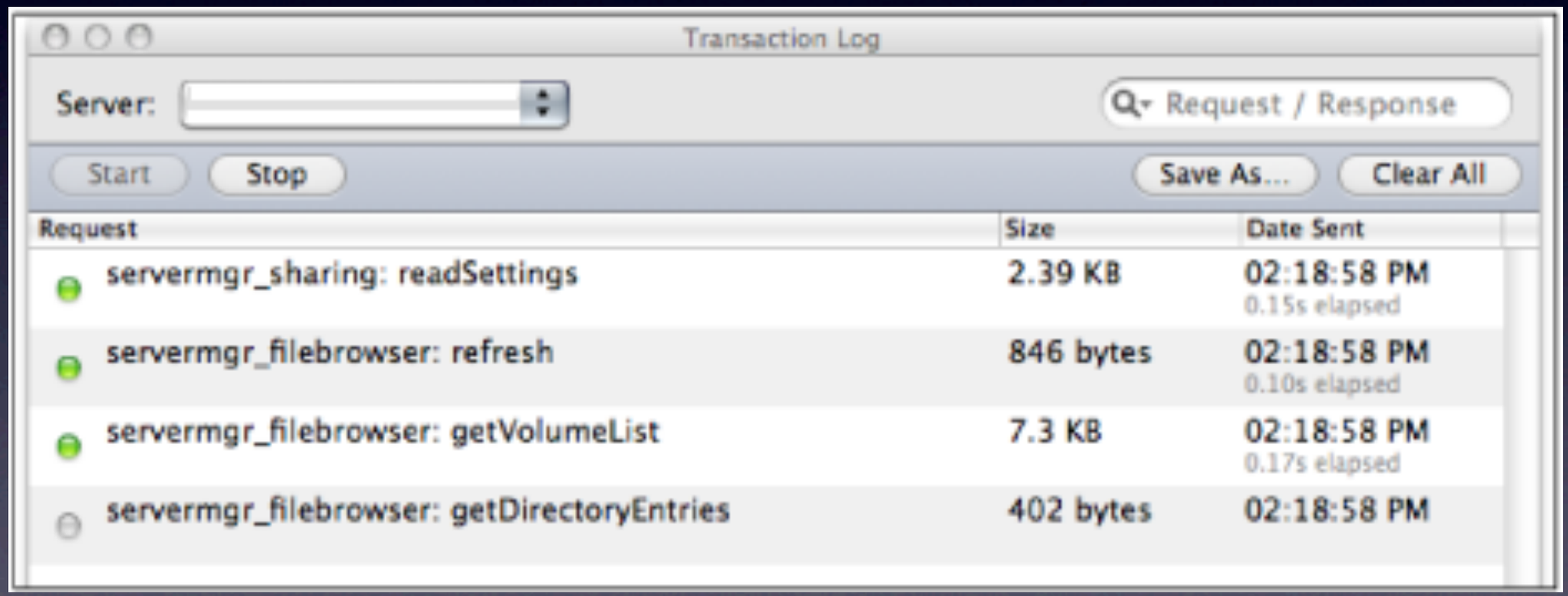
```
#!/usr/bin/python
import sys       # The exits string
import plistlib # The property list library
import subprocess # Sub process
import urllib2  base64

username = "nonprivlages"
password = "password"
server   = "netboot.server.com"
request = urllib2.Request("https://" + server + ":311/commands/
servermgr_netboot?"
base64string = base64.encodestring('%s:%s' % (username,
password)).replace('\n', '')
request.add_header("Authorization", "Basic %s" % base64string)
httpResult = urllib2.urlopen(request)
serveradminXML =  httpResult.read()

plist = plistlib.readPlistFromString(serveradminXML)
```

Finding the request data

```
defaults write com.apple.serveradmin UseDebugMenu YES
```



Load balancing netboot

```
def getUsersArray():
        netBootClients = 0
        for usersArray in plist['usersArray']:
                idleSecs = usersArray['idleSecs']
                if idleSecs < idleTime :
                        netBootClients += 1
        print "Content-type: text/html\n\n"
        print "<html><head>"
        print "<title>Connected Netboot Clients</title>"
        print "</head>"
        print "<body>"
        print "%s" % (netBootClients)
        print "</body>"
        print "</html>"
getUsersArray()
sys.exit(0)
```

Your Mac OS Upgrade is about to begin

Network Install: Your machine will now reboot and display the icons in the picture above.
Once started your system will automatically begin upgrading your Mac.
This process may take from 45 minutes to 1.5 hours and cannot be interrupted.
Please be sure you have ample time before continuing.

When this process is complete your Mac will reboot normally.

Current Server Load for (127.0.0.1)

Cancel Restart

com.[redacted].processcomplete.settings.plist

Add Item Delete Item

Key	Type	Value
▼ Root	Dictionary	(15 items)
PreferencesPath	String	/Library/Preferences/com.gene.macupgrader.plist
DVDPath	String	/Volumes/Mac OS X Install DVD
NetDescription	String	Network Install: Your machine will now reboot and display t
NetTitle	String	Your Mac OS Upgrade is about to begin
DVDDescription	String	Media Install: Your machine will now reboot to the installati
DVDTitle	String	Your media-based Mac OS Upgrade is about to begin
MaxValue	Number	30
WarningValue	Number	20
CriticalValue	Number	25
[illegible]	Number	1
[illegible]	String	cgi-bin/nbstats
[illegible]	String	Server load is currently very high
[illegible]	String	All Servers are currently busy
[illegible]	String	Are you sure you want to continue, the server is experienci
[illegible]	String	All servers are currently experiencing high load, please wai

MaxValue

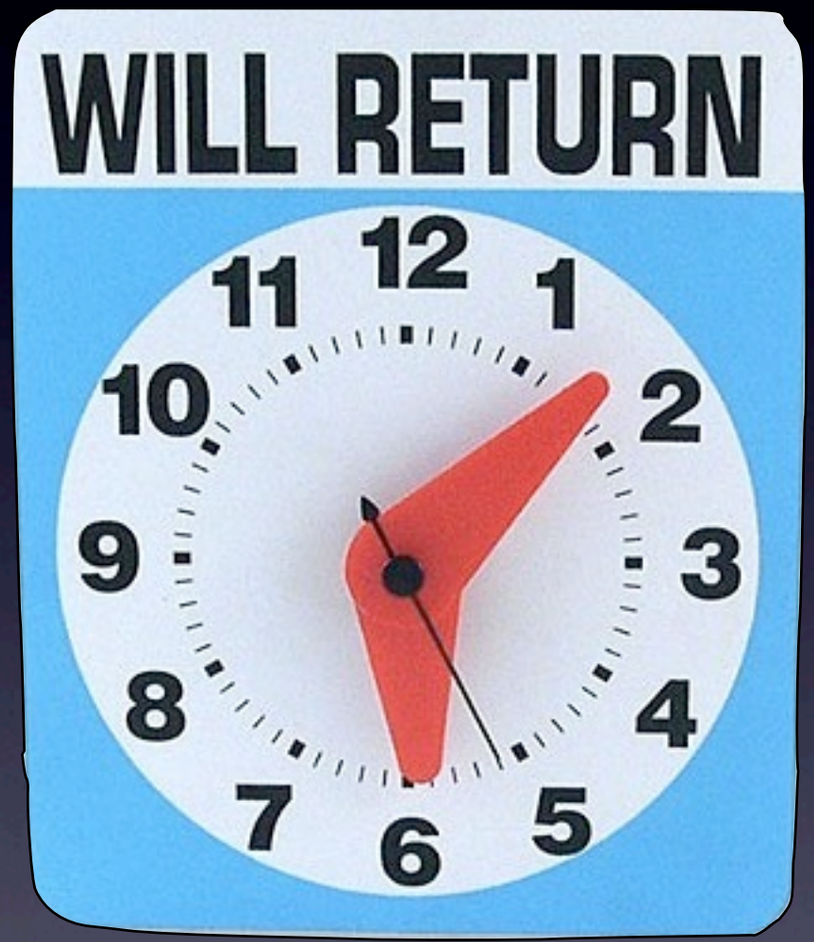
WarningValue

CriticalValue

Current Server Load for (127.0.0.1)

Planning for disaster

Please stand by...



Automatically Backing Up Open Directory

/usr/sbin/serveradmin

dirserv:backupArchiveParams:archivePassword = "$PASS"

dirserv:backupArchiveParams:archivePath = "$PLACE"

dirserv:command = backupArchive

Open Directory Backup

http://tinyurl.com/492l48x

Server Admin | Server | Edit | View | Window | Help

New Server Admin Window ⌘N

Add Server... ⌘K
Remove Server
Disconnect ⇧⌘K
Share Server's Screen...

Install Remote Server...
Set Up Remote Server...
Create Auto Server Setup Profile...

Add Service...
Start or Stop Service
Restart Service
Soft Restart Service

Import
Export
Close

Service Settings...
Server Admin Preferences...

serveradmin settings

```
for SERVICE in $(serveradmin list) ; do
  declare STATUS="$(
  serveradmin status $SERVICE 2>/dev/null |
          awk '/.*:state/{print $NF;exit}')"
  if [ "$STATUS" = '"RUNNING"' ] ; then
      echo $SERVICE is running
      serveradmin settings $SERVICE \
    >"$SERVICE.serveradmin"
  fi
done
```

10.6/10.7

Automated Settings Backup

sabackup.sourceforge.net

Automated Settings Backup

Automated Settings Backup

```
Syntax:
  sabackup --outputdir="/sabackups/" [options]
  sabackup --outputfile="/sabackup.dmg" [--services=afp,dns,ftp] [options]
  sabackup --outputfile="/sabackup.plist" --nodmg [--service=dns] [options]
  sabackup --plist="/Library/Preferences/com.318.sabackup.plist"

Flags:
  --plist= ## Path to a plist to read configuration information from.
             This will override any other provided options!

--outputfile= ## path to save exported plist or sparseimage file.
--outputdir= ## path to directory for export. If multiple services are specified,
           they will be saved in a service-specific subdirectories under 'dir'

--usedmg    ## When specified, backups will be saved in the form of a sparseimage
           file, which contain versioned backups of service configs. Defaults to
           true with the '--outputfile=' option and defaults to false with the
           '--outputdir' option. if '--useimage' is used with '--outputdir', then a
           disk image will be made based on the machine's hostname:
           "myhost.local_sabackups.sparseimage"

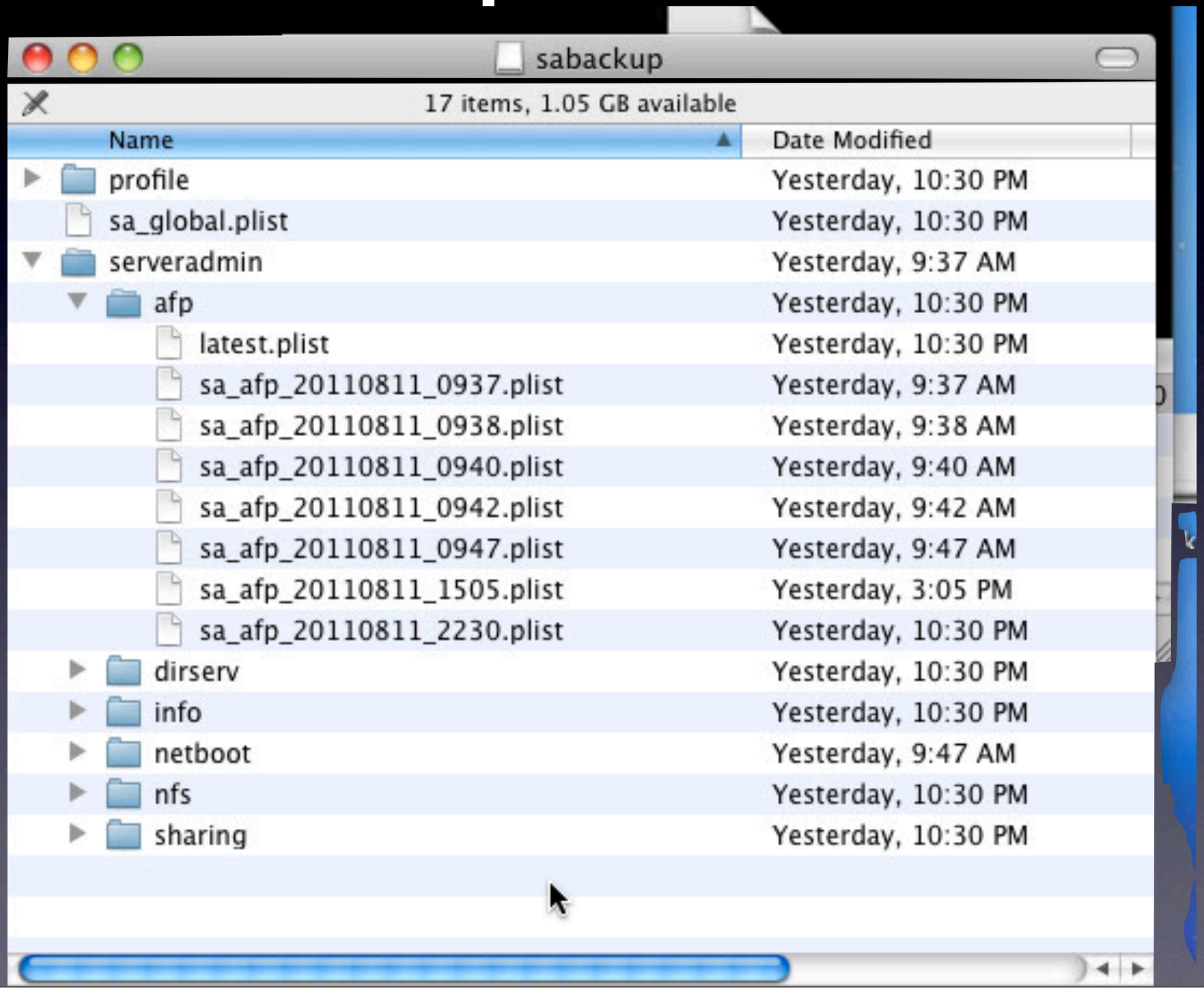
--nodmg     ## When used in conjunction with the '--outputfile' option, output
           will be in the form of an XML plist of the specified services.

--nosubdirs ## Disables the use of service-specific subdirectories

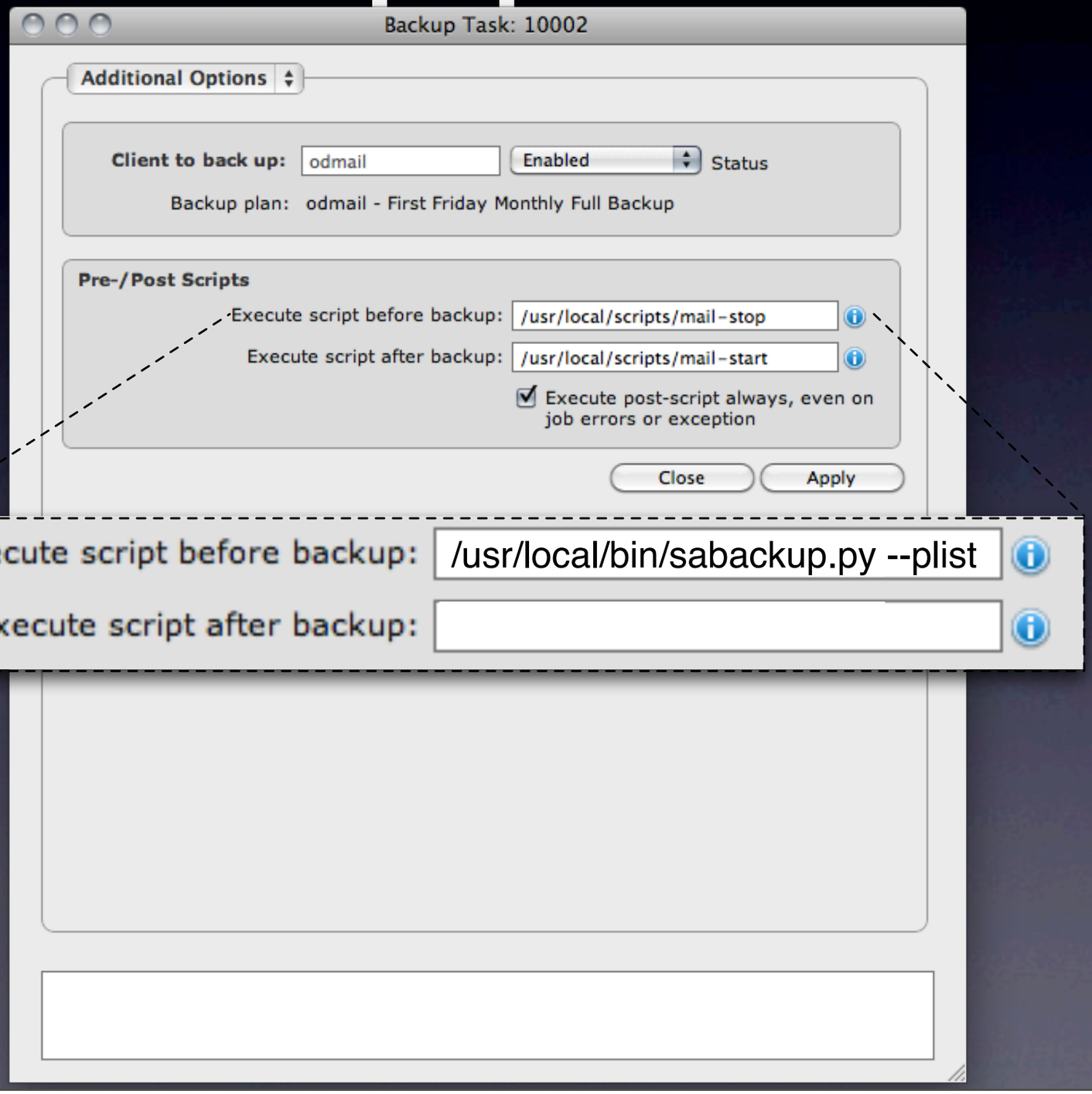
--service=  ## used with '--outputfile' option to denote which service is
           to be saved to the specific file.

--services=  ## Used with --outputdir option to denote which services will be
           backed up. Supported Services:
           "all" - akin to 'serveradmin settings all'
```

sabackup structure



Integration with existing backup provider



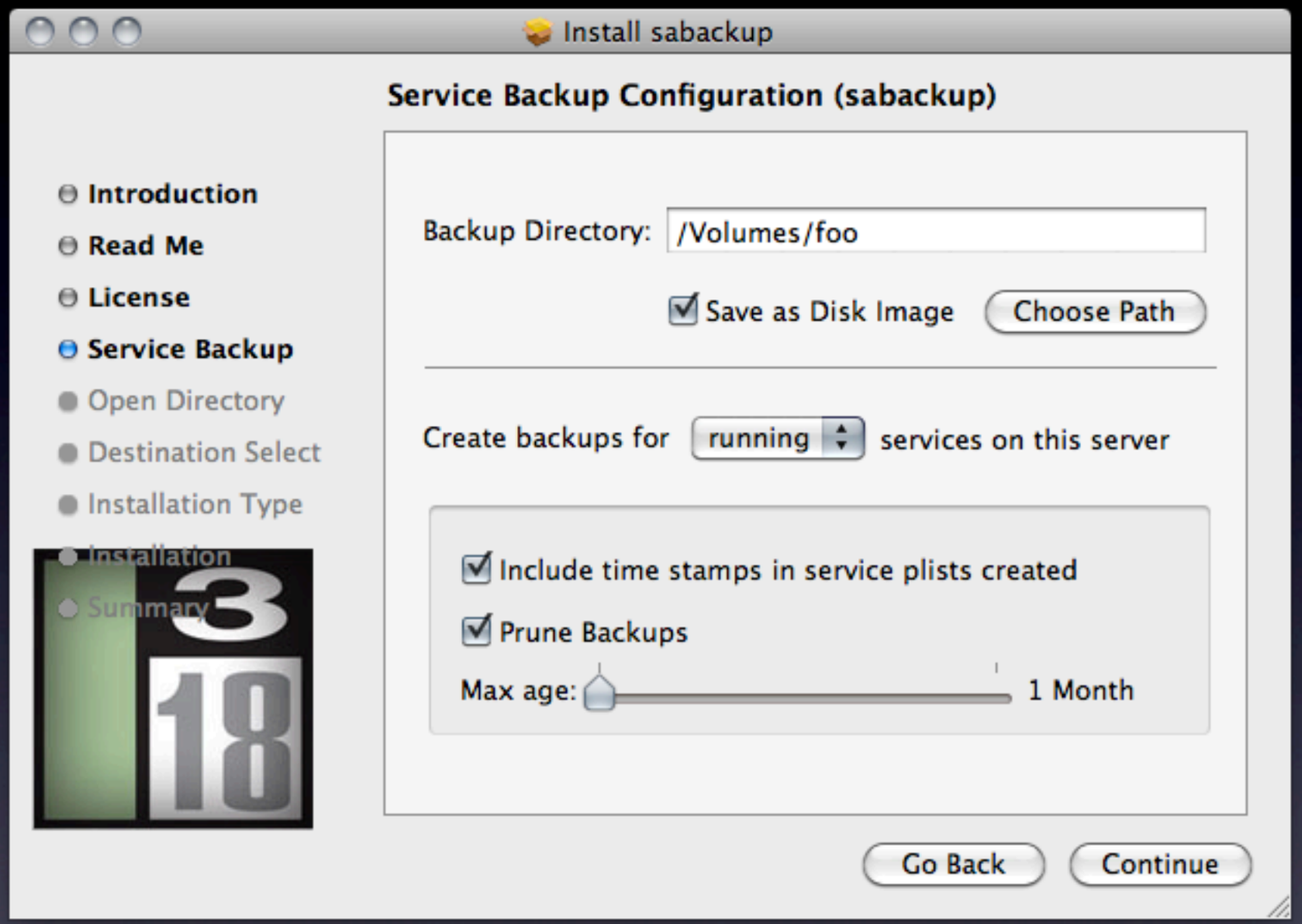
Usage

/usr/local/bin/sabackup.py

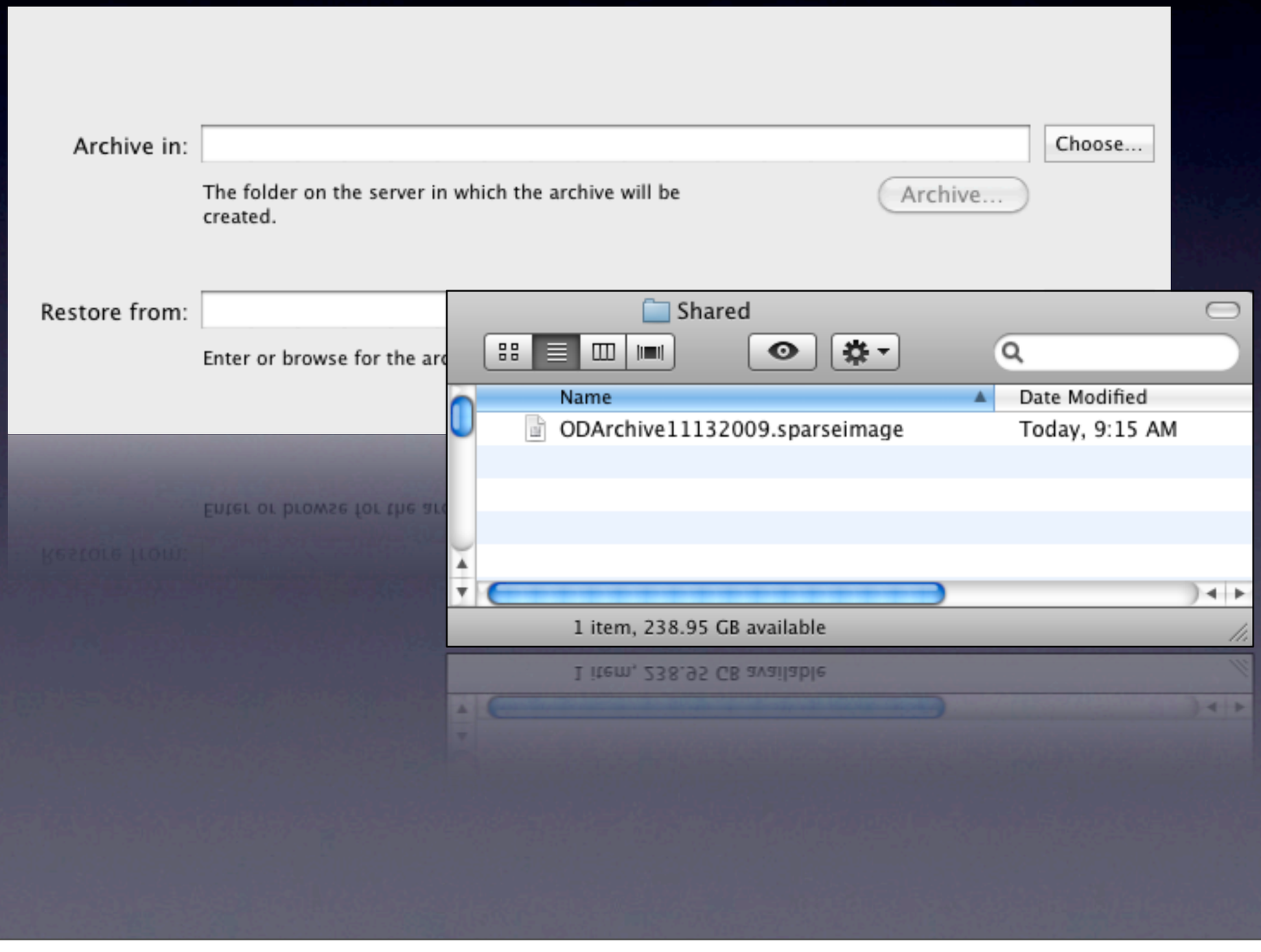
--plist=/Library/Preferences/com.318.sabackup.plist

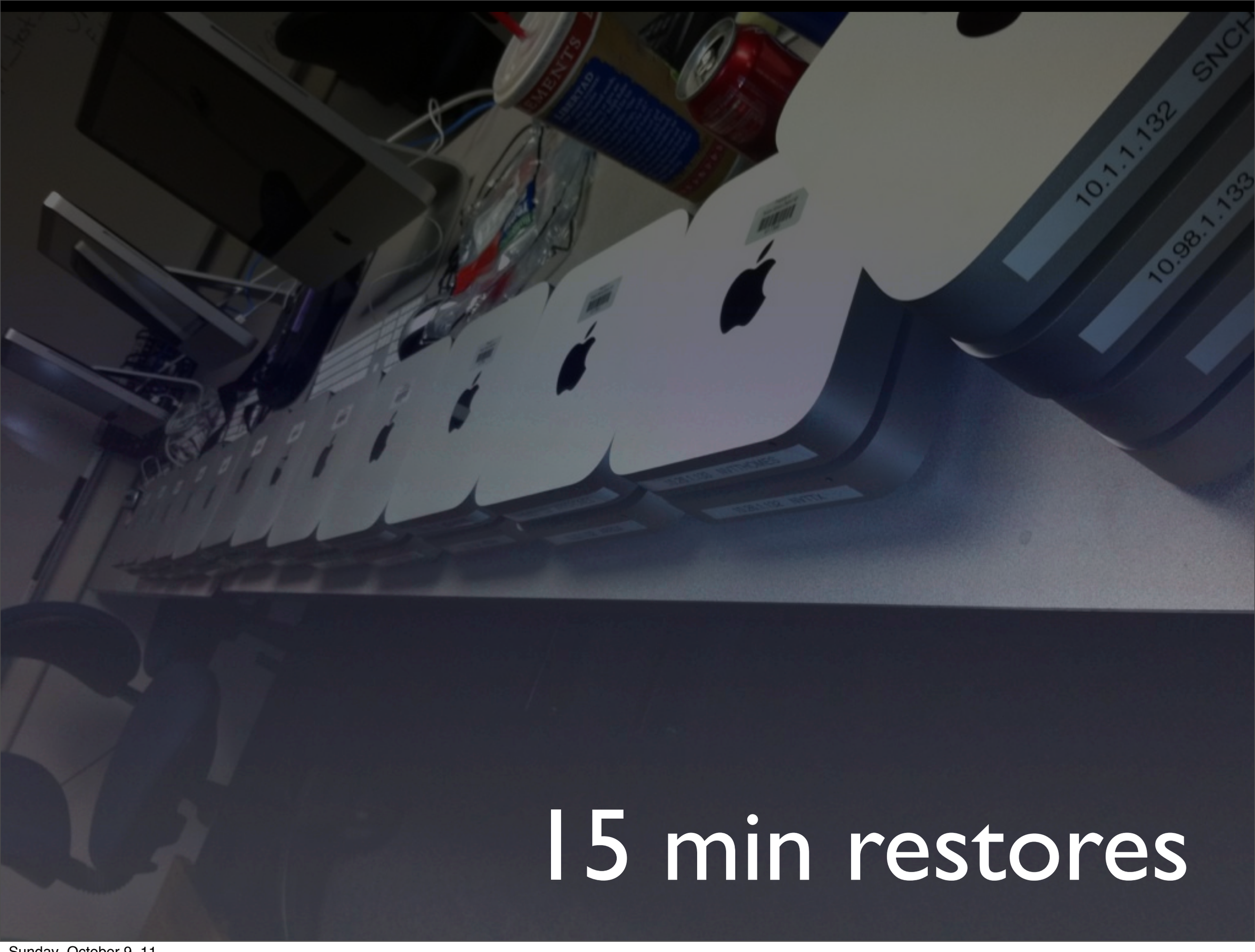
2>/dev/null

Configuration



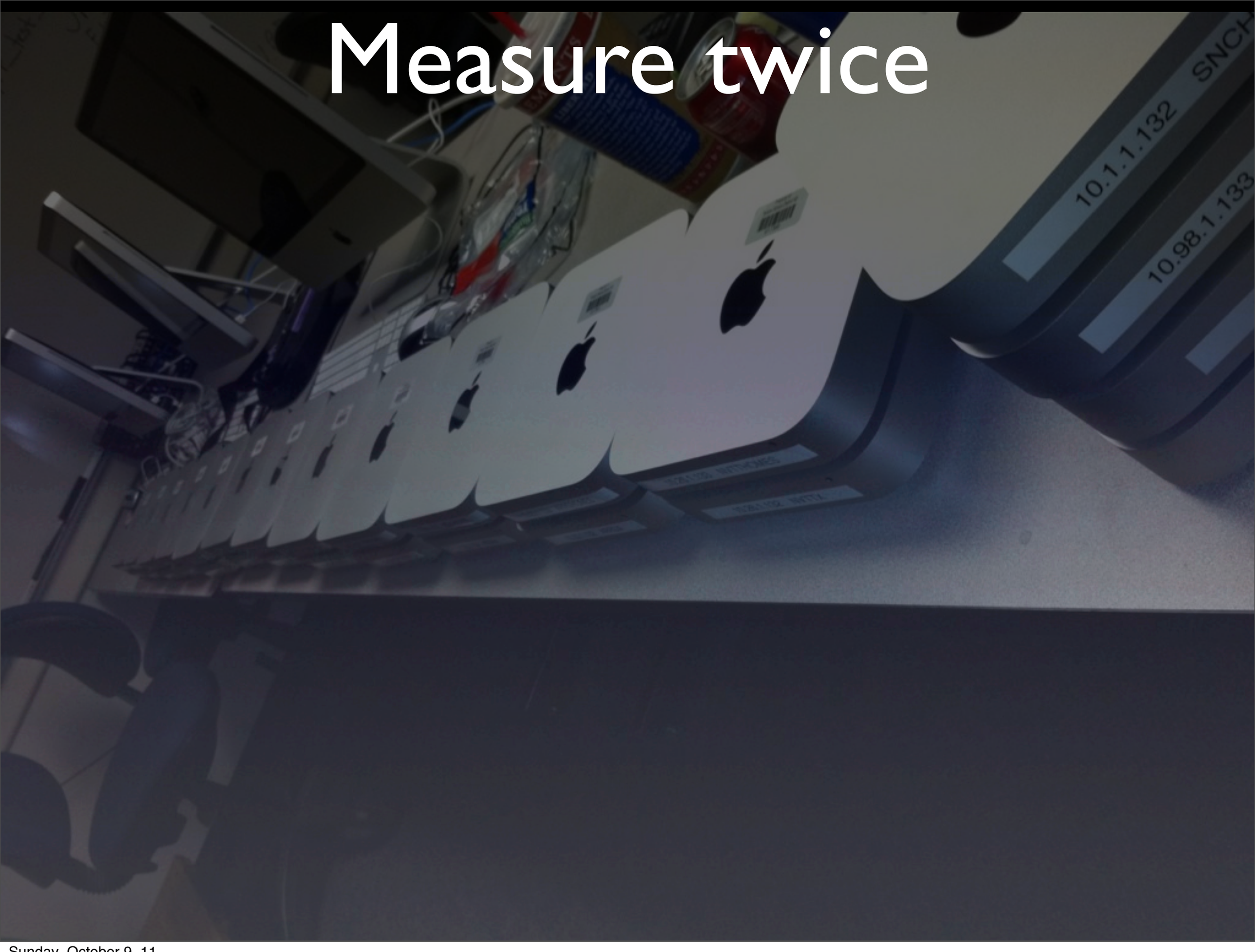
Open Directory Restore





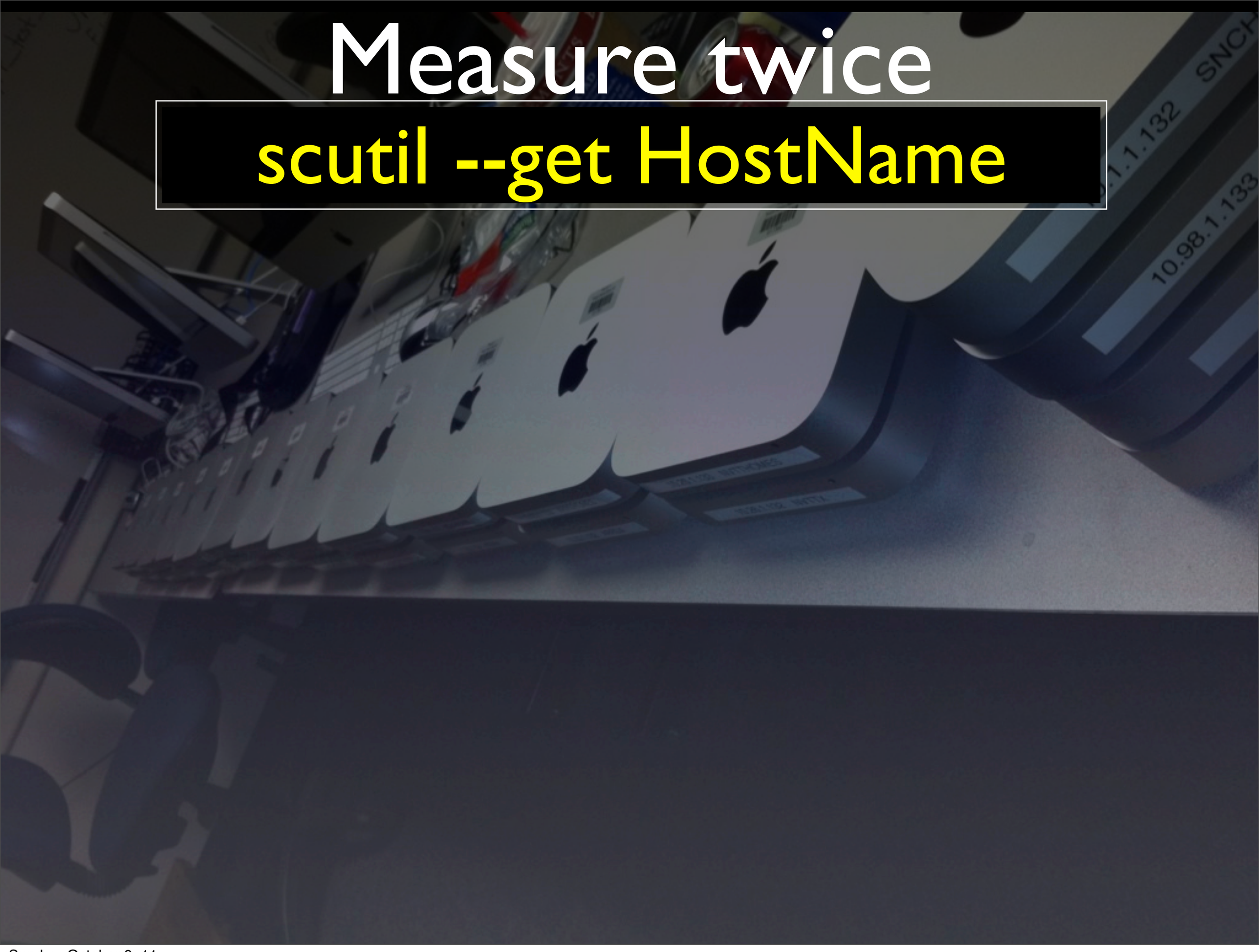
15 min restores

Measure twice



Measure twice

scutil --get HostName



Measure twice

```
scutil --get HostName
```

```
dig -x 10.1.1.1
```

Measure twice

```
scutil --get HostName
```

```
dig -x 10.1.1.1
```

```
dig some.server.com
```

Measure twice

scutil --get HostName

dig -x 10.1.1.1

dig some.server.com

```
#!/bin/bash
D=','
IFS $'\n'
for LINE in $(cat "$1")    do
        declare COL1="$(echo $LINE |
                awk -F"$D" '{print $1}')"
        host $COL1 &>/dev/null ||
                echo "$COL1 not working"
done
```

applicableServersPredicate

```
<?xml version "1.0" encoding "UTF-8"?>
<!DOCTYPE        PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://
www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version "1.0">
<dict>
        <key>VersionNumber</key>
        <integer>4</integer>
        <key>applicableServersPredicate</key>
        <string>SerialNumber ==[c] "H00391KB10S"</string>
        <key>config</key>
        <dict>
```

SerialNumber ==[c] "H00391KB10S"

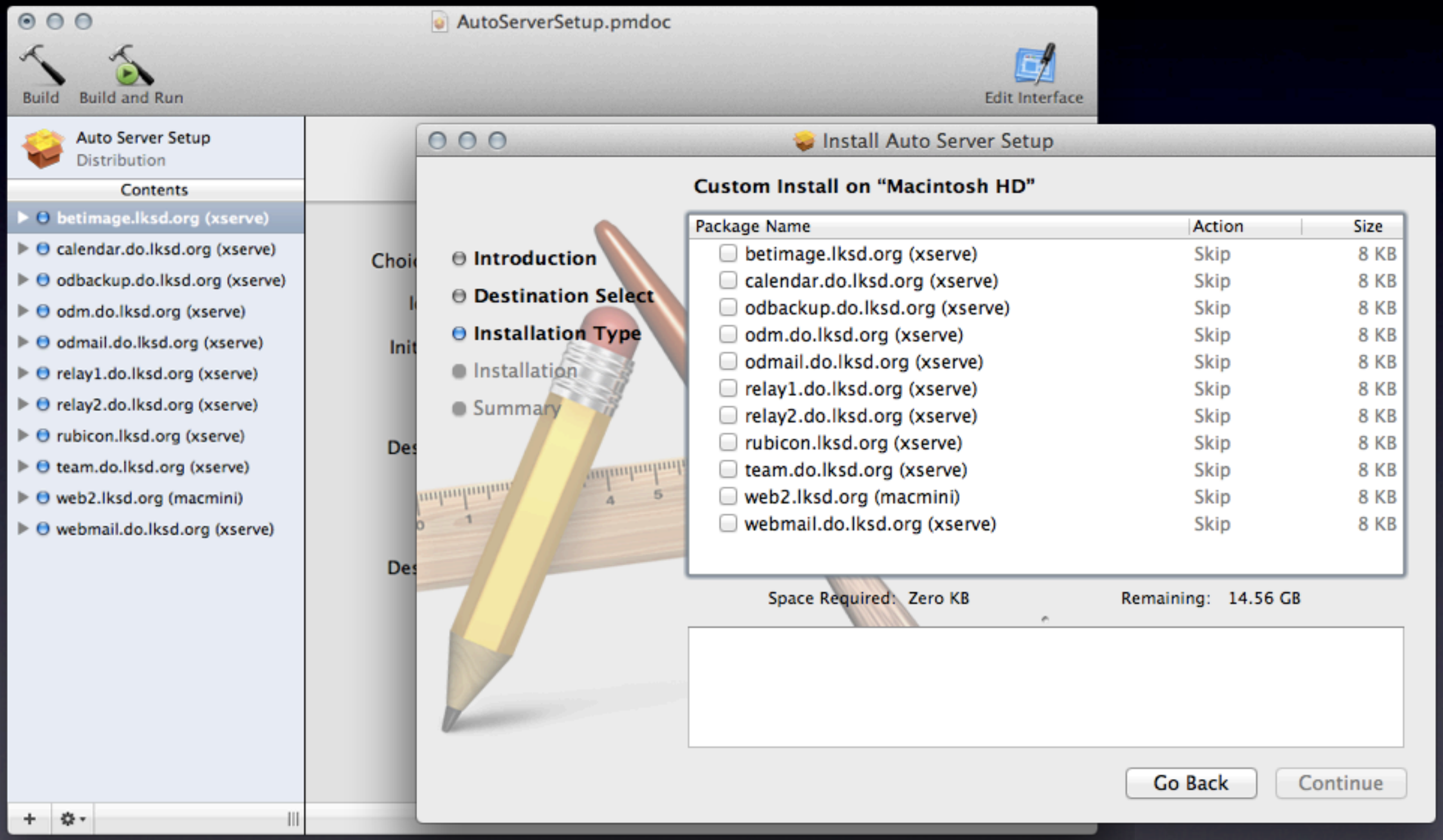
AutoServerSetup.plist

```
        </dict>
        <key>encryption</key>
        <integer>0</integer>
        <key>maximumOSVersion</key>
        <string>10.7</string>
        <key>minimumOSVersion</key>
        <string>10.6</string>
</dict>
</plist>
```

Find & Replace

```
# NTP_SERVER
if [ "${#NTP_SERVER}" -gt 0 ] ; then
     cat "$TEMPLATE" |
      $awk '{gsub(/__NTP__/,ENVIRON["NTP"],$0)
print}' >"$MY_HOST_NAME.plist"
else
   echo  "NTP_SERVER is null for $MY_HOST_NAME"
   exit 1
fi
```

Hardware Independent



Server Restore.workflow (Workflow) — Locked

Hide Library | Media | Record | Step | Stop | Run

Actions | Variables

- Library
  - Address Book
  - Automator
  - Dictionary
  - DVD Player
  - Finder
  - Font Book
  - GrowlHelperApp
  - iCal
  - iDVD
  - Image Capture
  - iPhoto
  - iTunes
  - Keynote
  - Mail
  - PDF
  - Preview
  - QuickTime Player
  - Remote Desktop
  - Safari
  - Spotlight
  - System
  - System I...e Utility

typeface

Result: Font Book typeface

Add Packages and Post-Install Scripts

Name	Size
AutoServerSetup.pkg	28.67 KB

Results | Options | Description

Customize Package Selection

	Default	Visible	Size
▶ Mac OS X Server	–	✓	10.41 GB
▼ Auto Server Setup	☐	✓	90.11 KB
betimage.lksd.org (xserve)	☐	✓	8.19 KB
calendar.do.lksd.org (xserve)	☐	✓	8.19 KB
odbackup.do.lksd.org (xserve)	☐	✓	8.19 KB

No package selected.

Space required: 10.41 GB

Results | Options | Description

Server Restore.workflow (Workflow) — Locked

Hide Library | Media | Record | Step | Stop | Run

Actions | Variables

Library

Add Packages and Post-Install Scripts

Customize Package Selection

	Default	Visible
▶ Mac OS X Server	▬	☑
▼ Auto Server Setup	☐	☑
betimage.lksd.org (xserve)	☐	☑
calendar.do.lksd.org (xserve)	☐	☑
odbackup.do.lksd.org (xserve)	☐	☑

Remote Desktop
Safari
Spotlight
System
System I...e Utility

typeface
Result: Font Book
typeface

odbackup.do.lksd.org (xserve) ☐ ☑ 8.19 KB

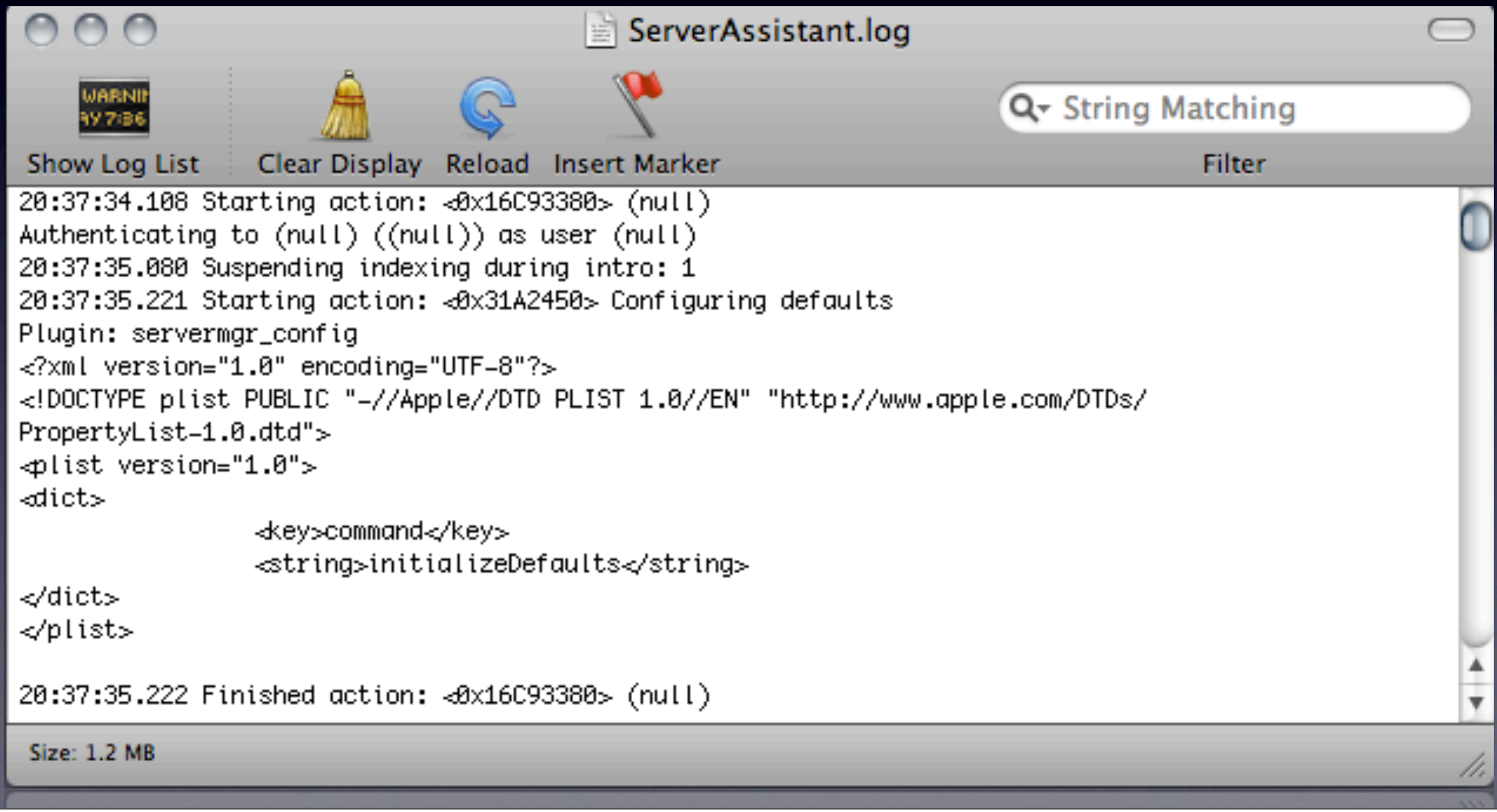
No package selected.

Space required: 10.41 GB

Results | Options | Description

Auto Server Setup

/Library/Logs/ServerAssistant.log



I am now on vacation

for 3 weeks